

SCOTT RIVER
LANDOWNER RIPARIAN PLANTING PROJECT:
A RIPARIAN IMPROVEMENT PROJECT
AGREEMENT # 14-48-11333-00-J001
PROJECT IDENTIFICATION # 2000-HR-03

Project completed on 2/15/01, by:
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Abstract: The Scott River has been listed as impaired by the North Coast Regional Water Quality Control Board (NCRWQCB) due to warm water temperatures and excessive sediment. One of the sources of warm water temperatures and increased sedimentation is the lack of riparian zone along the stream banks. Enhancement of the riparian area can aid to reverse the degraded condition and improve in-stream conditions. Established riparian areas along streams can stabilize stream banks, trap and hold sediment, reduce excessive active channel widths, increase moisture holding content of the soil and improve in-stream conditions. The Siskiyou Resource Conservation District (RCD) and Scott River Watershed Council (SRWC) have identified the establishment of a contiguous riparian corridor along fish bearing streams as one of the keys to enhancing anadromous habitat conditions within the watershed and improving water quality conditions.

The completion of the Scott River Landowner Riparian Planting Project II aided in our goal of establishing contiguous riparian trees along the tributaries and the main stem of the Scott River. The RCD planted approximately 10.0 acres of riparian plantings in five different locations throughout the watershed. The RCD used a backhoe to bury the plantings deep in the soil in order to revegetate areas which were not naturally propagating. Several property owners have become very interested in their riparian plantings and have taken pride in maintaining the plantings. This fosters an interest and responsibility to the riparian areas that provides long term improvement.

INTRODUCTION: The Siskiyou Resource Conservation District (RCD) is a special district ran by a board of property owners who are addressing resource issues within the Scott River watershed. The RCD has focused mainly on the floor of Scott Valley which has been in agricultural use for over 130 years. Agriculture within Scott Valley focuses on beef cattle, wheat and alfalfa production. The Siskiyou RCD searches for project designs which reduce direct and potential conflicts between the use of natural resources and the needs of native species. We have found that projects which serve mutual benefits or, at least no negative impacts to the resource user are permanent projects as the property owner is eager to take over the required maintenance.

The current issue related to resource use revolves around anadromous fisheries and watershed health. The population of anadromous fisheries has generally declined throughout the Pacific Northwest during the past several decades. Academia has found that water quality is one of the limiting inland factors related to declining salmonid populations. The North Coast Regional Water Quality Control Board (NCRWQCB) has listed the Scott River as having two non-point source water quality impairments: excessive sediment and temperature levels at certain periods of the year. The SRWC and the RCD have identified contiguous riparian establishment as a viable treatment for both impairments as well as a necessary ingredient in improving anadromous habitat.

Riparian corridors within the Scott River watershed have been reduced by gold mining, timber harvest, development, government programs, agriculture, fire and riparian diseases. All the factors have been documented in the watershed. Recent awareness of the importance of riparian corridors to fisheries and the benefits to the property owner have increased the popularity of riparian planting in the Scott River watershed. Approximately 170 acres of riparian planting has been planted along the Scott River and its tributaries in an effort to improve in-stream conditions. Some planting locations and techniques have been failures while others have survival rates of over 98%. Landowners who generate an interest in their riparian plantings increase survival rates and provide needed maintenance during establishment.

There are two reasons we feel the Scott River Landowner Riparian Planting Project is an important step in meeting our riparian goal. The first is that attentive property owners increase planting success due to their involvement and commitment. The second is this program allows planting to occur in outlying areas where riparian revegetation has not occurred. The RCD has found that successful project implementation with one property owner allows neighboring property owners to review the project, observe its benefits, and participate in a similar project at a later date. The RCD and SRWC have numerous examples of this taking place. As more property owners see the benefits of established contiguous riparian areas, more planting projects can take place.

METHODS AND MATERIALS: The scope of the Scott River Landowner Riparian Planting project was to plant 9.5 acres. We ended up planting approximately 10.0 acres. The riparian trees are planted with a back-hoe along the stream bank, high gravel bars

and terraces. The use of a back hoe allows us to plant the cuttings and rooted stock as deep as the estimated summer moisture layer. This ensures a reduction in maintenance (less need for irrigation) as well as mortality. First year growth can exceed two feet and possess over four major branches (stems) while two year old trees are often over four feet and up to twelve feet tall. The RCD has increased planting success by determining the characteristics of good planting stock, good planting locations and appropriate density.

The major focus of the Scott River Landowner Riparian Restoration Project is establishing a riparian area. The benefits of a riparian corridor are many. Riparian areas trap sediment, provide shade and cover to instream habitat, and the root structure provides added strength to the banks and bars of streams.

The planting method is rather severe initially, but the results have been good. The RCD cuts large stock from willow species (Pacific Willow and Arroyo Willow) and from Black Cottonwood. The cuttings are usually no more than 2.5" in diameter yet may be as long as 12 feet. The cuttings are taken from trees nearby and are transported to the site and buried using a back hoe. The RCD uses a back-hoe to dig holes in order to place the cuttings at an elevation deep enough to be in contact with the summer water table. The density of the plantings using the pole stock method averaged around 150-210 trees per acre, depending on the site conditions and the intent of the planting.

Year end survival was determined through monitoring the trees for live stems and leaves during late October. We also determined a vigor rating for each surviving plant. Vigor was determined by number of main stems supported by the plant, and the length of the stems. A survival and vigor sheet is attached.

PROJECT ACCOMPLISHMENTS, SITE DESCRIPTIONS AND RESULTS:

The RCD planted 10 acres in five different locations. The conditions at the locations were extremely different as were the success rates. The accomplishments and site conditions can best be broken down by each site:

Site 1:

Location: Eiler Ranch, two miles below Fort Jones on the main stem of the Scott River and along the lowest reach of Indian Creek. The reach of the main stem has an overly wide and unstable active channel. Our goal was to plant riparian species so the riparian area is contiguous and will encroach on the overly wide channel, or at least stop retreating. Approximately 1.5 acres of Pacific Willow, Black Cottonwood and red willow cuttings were planted late in the winter of 2000. Locations for planting included areas along Indian Creek, its confluence with the Scott River and a location just below Indian Creek on the Scott River.

Specific Site Conditions:

Summer Water Table Elevation: The estimated low water table depth varied from 6-12 feet below the soil surface of the planting sites. The higher elevation areas are

pushing the maximum root depth but pacific willow and cottonwood have established in similar conditions using this planting style.

Plant Competition: There is no competition on a majority of the planting sites due to the over washed material. We are aware that washed gravel can produce excessive heat which can burn the tree at the base. To counter this we have placed mulch around the base of the tree to absorb the heat.

Soil Condition: The condition of the soil ranged from well drained gravel material to a sandy loam. Basically, the soil conditions are poor but if riparian establishment can occur, the site is very favorable to accumulate sediment contribution and improve conditions.

Wildlife Affects: The site supports a fair population of deer which summer along the Scott River and feed in the fields. Some browsing did occur but it was not significant. Beaver enjoyed the plantings near Indian Creek but the damage affected less then 25% of the site.

Post Planting Evaluation: We achieved a little less then average success at this main stem site and along Indian Creek. On the main stem, we feel the difficulty of the site combined with a dry, early summer which lasted until October, stressed the plants to the point of poor survival. The survival rates on the main stem was 64% and the average vigor (scale of 1 to 5, 5 being great growth) rating was 2.3. The Indian Creek planting's survival rate was 59% survival rate and a vigor rate of 3.5. Poor stock seemed to be an issue on Indian Creek as one planting stretch showed little or no stem development or root development and composed nearly half of the trees which did not survive at the site.

Site 2:

Location: Ralph Smith, main stem of the Scott River and on the confluence of Patterson Creek near Meamber Creek. The north side of the river was planted under this project while the south side was planted during the spring of 1996 and is performing very well. The channel width is functioning properly, but the riparian width is narrow. The goal of the project was to fill in the voids to provide a contiguous riparian reach and increase the width of the riparian area by planting in front or behind the existing riparian trees. Increased width of the riparian area reduces the potential for severe channel changes, protects riparian fencing and collects sediment. 4.0 acres were planted at this location.

Specific Site Conditions:

Low Flow Water Table Elevation: Planting elevation varied throughout this project site. Some tress were planted in selected overflow areas where the average low flow water table depth is estimated at about 6-8 feet. The higher terrace was approximately 9-12 feet to low flow water table elevation.

Plant Competition: The soil is excellent. Deep rich loam dominated the site except for the reach along Patterson Creek which is gravel dominated, and no competition was

present. The excellent soil provides an excellent medium for competition. Competition is mostly in the form of grasses. Quack grass, rye grass, and annual grasses are most prevalent. We knew that even quack grass roots don't exceed four feet in depth. This left us 4-6 feet of soil with little to no competition to thrive in.

Soil Condition: Soil conditions are excellent except for the immediate location along Patterson Creek. The reach along the Scott River possessed excellent soil conditions with layers of silt loam and sand.

Wildlife Affects: Deer browse is present but not significant. Beaver have also provided some affect but also not significant.

Post Planting Evaluation: The success at site #2 was impressive except for the small site on Patterson Creek site which has only 23% survival. The main site along the main stem of the Scott River responded well with a survival rate of 83% and a vigor rate of 3.5. 30% of the plantings which did not survive were grouped together in a site with good planting conditons. This leads us to believe poor planting stock was the issue again as little to no development occurred.

Site 3:

Location: Bruce Bradford, main stem of the Scott River .5 miles above the confluence of Shackleford Creek. The north side of the Scott River was planted to Black Cottonwood, Red Willow and Pacific Willow. The channel is in good condition and seems to be fairly stable with minor fluctuations. Livestock have entrance to the site, but it was believed that their entrance would occur late in the season, after or late in the growing season. About 3.0 acres were planted at this site.

The riparian area is thin throughout the project site and runs in bands. The intention of the riparian planting at this site was to increase the width of the riparian area and extend the length of the bands. The planting location is a low terrace area which used to be a pasture with gravel streaks and sand deposits throughout.

Site Specific Conditions:

Low Flow Water Table Elevation: The estimated water table elevation during the low flow period of the year is about 6-8 feet.

Plant Competition: There is significant plant competition in the project site. Orchard grass, and quack grass dominate the area where good soil exists. Little competition is evident in poor soil conditions.

Soil Condition: The soil in this planting site is good in some locations and poor in others. The site is located just above the canyon reach of the Scott River which receives repeated floods. Flows deposit gravel and sand in some locations and fine sediment in other locations.

Wildlife Affects: Deer browsing or beaver damage was not an issue at this site. The trees grew well early in the year then slowed dramatically. In mid July, livestock entered the site and caused some damage to the trees, mostly by lying on them rather than grazing. The livestock damaged trees were already not performing well and the combination caused high mortality.

Post Planting Evaluation: Survival percentage was only 56% for the site while vigor was only 1.5. Livestock had an impact, but it was not the only issue. While the site looked good and stock seemed to show development attempts, something was missing. The plantings were mulched to reduce heat damage and water table did not seem to be an issue, nor was competition. We are not sure why plantings were not doing well even before livestock entrance.

Site 4:

Location: D. Smith, approximately 2.5 miles above the confluence with Moffet Creek on McAdams Creek. Both sides of the creek were planted totaling 1.5 acres of Black Cottonwood, Pacific Willow and Red Willow. The area planted was a low terrace and some locations of a higher terrace. Riparian condition just upstream of the site is good. The project site is improving but appears to have been affected by previous management activities. We expected this site to be one which reacted positively.

Site Specific Conditions:

Low Flow Water Table Elevation: The estimated water table in this reach is estimated to be fairly deep. The level of a nearby pond located at the Northeast of the site showed the water table to be at about 12-14 feet during the summer.

Plant Competition: There is some plant competition, but it is not significant. Star Thistle and annual grasses were the dominant species in gravel dominated locations while emerging sand bar willow and perennial grass (quack grass) were dominating the better soil locations.

Soil Condition: The soil varied from excellent to poor. Much of the soil was a mix of soil and small gravel (less than .5"). There was a high elevation section which was gravel dominated. The trees in this location are much shorter and the survival rates were lower.

Wildlife Affects: Deer browsing was an issue late in the summer and fall when they had an impact on actual growth. Root strength should be solid and established for next season.

Post Planting Evaluation: The site performed fairly well. 80% of the cuttings survived through the first season. Vigor was poor, and it appeared many of the plantings had just limped throughout the difficult year. Vigor rating is only 1.7 and many of the trees had died back considerably and were browsed heavily. Maintenance and mulching

pulled many of the trees through the season. Native riparian vegetation died back at this site as well. Water availability appeared to be a limiting factor at this site.

Site 5:

Location: On Moffet Creek .5 miles East of West Moffet Creek Rd. Bridge. The North side of the Creek was planted. Approximately .5 acre was planted. The area planted was on the terrace of a stabilized reach of Moffet Creek.

Site Specific Conditions:

Low Flow Water Table Elevation: The elevation of the water table at this site is not known. We expect it to be about 14 feet deep.

Plant Competition: There was basically no plant competition issues at this site, but grass seed was planted by the property owner in order to improve root strength.

Soil Condition: The soil condition at this site is good. It is composed of clay and small gravel.

Wildlife Affects: The affects of wildlife were minimal. Late season deer browsing occurred, but because the browsing was temporary it was not significant.

Post Planting Evaluation:

The site did extremely well as did the opposite side of the creek last year. Survival percentage was 96% and the vigor rating was 3.7. Moffet Creek has work well for riparian plantings. The landowner is committed to the project and provides maintenance much better then the other participants. The trees are irrigated via irrigation sprinklers, which has helped with vigor and survival.

SUMMARY AND CONCLUSIONS: We are fairly pleased with the over all survival rate. We attribute lower vigor rates to the difficult water year due to the long stretch with very little precipitation (dry from April to November). We used a lot of stock, and most of it was good quality. Yet some of our poor survival areas were grouped in moderate to good soil conditions, and there appeared to be little to no stem and root development, which means poor stock. We are also concerned about some of the unknowns such as why we did poorly at site #3 and on Patterson Creek. Unfortunately, the Spring and Summer of 2000 was the second year in a row for poor riparian establishment due to low precipitation rates from March trough October. We feel our minimum protection and maintenance measures performed by the RCD and property owners increased our survival dramatically. Our second year loss using this planting method has been less then 10% where monitored. Therefore, with some confidence, we feel we have an establishment of 50% to 90%, depending on the site.



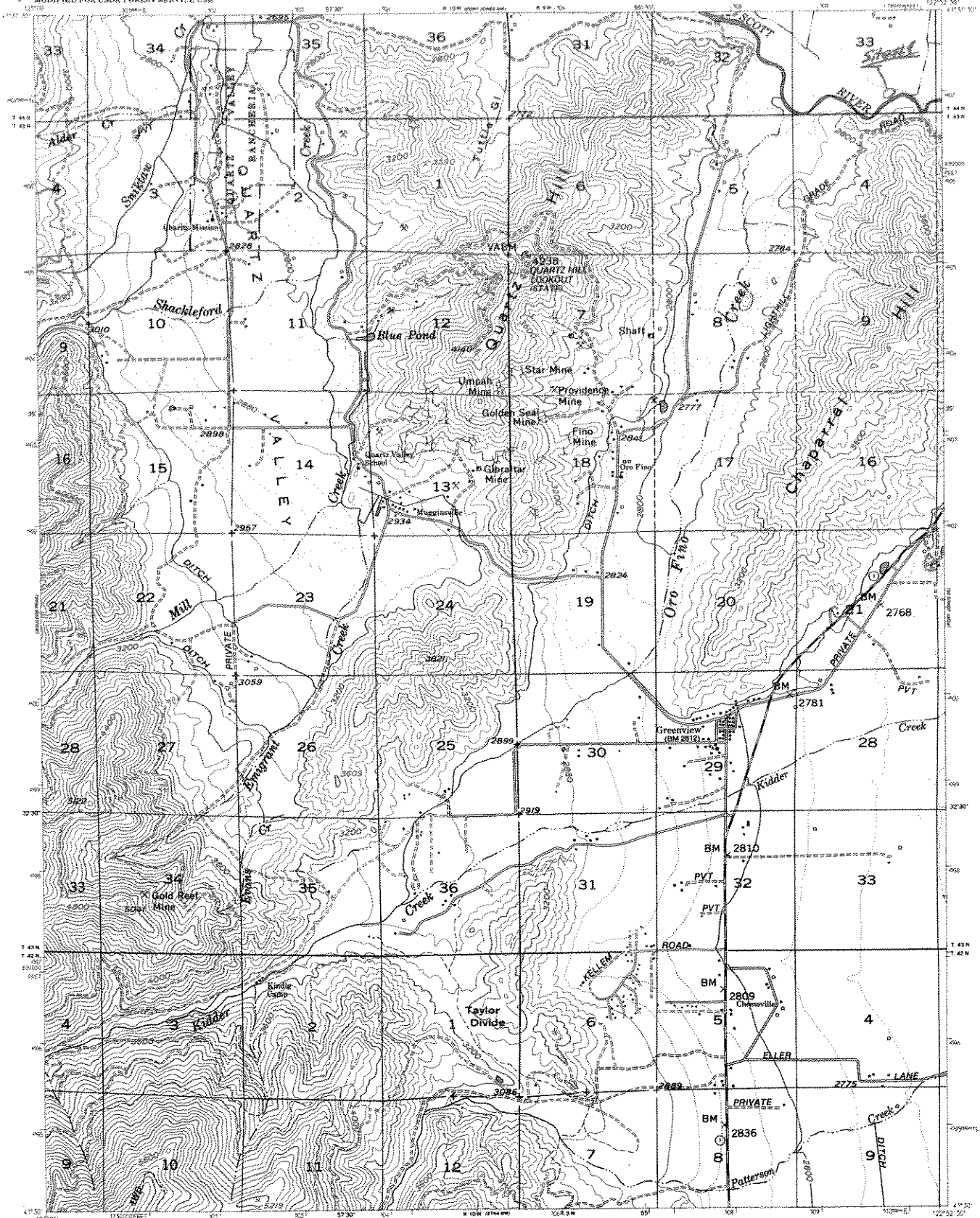
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February 12, 2001

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Scott River Landowner Riparian Program
Agreement # 14-48-11333-00-J001
Project ID # 2000-HR-03
(RCD ref. # 80 II)

	Budget	Budget Readjustment	Final Budget	Amount Remaining
a. Salaries (including benefits)	4,422.00	(327.00)	4,095.00	-
b. Expendable equipment, materials, supplies	2,434.00	412.18	2,846.18	-
c. Operations and maintenance	5,570.00	(85.18)	5,484.82	-
Subtotal	12,426.00		12,426.00	-
e. General and administrative Expenses (overhead @ 10%)	1,243.00		1,243.00	-
Total	13,669.00	-	13,669.00	-
In-kind: Labor 64 hours @ 11.00			704.00	



Base map prepared by the U.S. Geological Survey

Control by USGS and USCGS

Topography by photogrammetric methods from aerial
photographs taken 1951. Field check 1954.
Polyconic projection 1927 North American datum
10,000-foot grid based on California coordinate system.
Zone 1
1000-meter Universal Transverse Mercator grid ticks,
zone 10, shown in blue

INTERIM EDITION

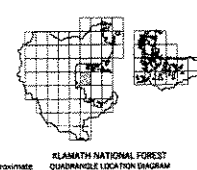
Modification to USGS base map prepared by the
Geomatics Service Center from 1982 aerial photography
and 1980 correction guides furnished by the Pacific Southwest
Region.

Landmark revised according to additional Forest
Service evidence.

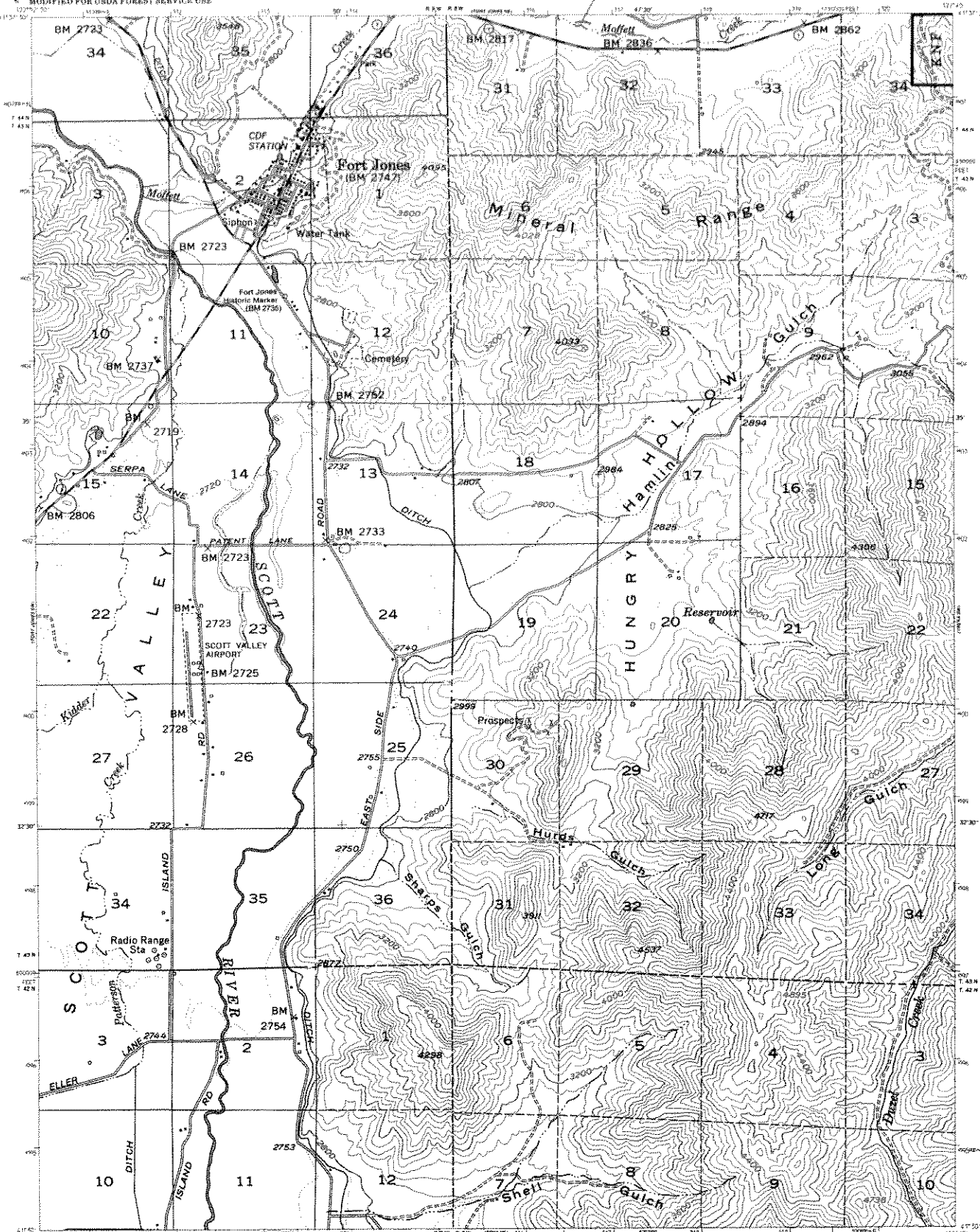


CONTOUR INTERVAL 80 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

TOWNSHIP AND SECTION LINE CLASSIFICATION		LEGEND	
—	National Forest Boundary	—	Primary Highway
- - -	Alienated Land within the National Forest Boundary	- - -	Secondary Highway
- - -	Surveyed Location Right-of-Way	- - -	County Road
- - -	Surveyed Location Approximate	- - -	Improved Light Duty
- - -	Unsurveyed Location	- - -	Unimproved Dirt
- - -	Unsurveyed, Protraction	- - -	Trail
- - -		- - -	Locked Gate
- - -		- - -	Road Location Approximate
- - -		- - -	Trail Location Approximate

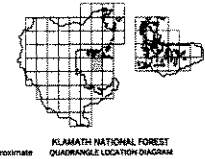


FORT JONES SW, CALIF.
N 1130-W 1282.5/7.5
REVISED 1983



Base map prepared by the U.S. Geological Survey
Control by USGS and USCAOS
Topography by photogrammetric methods from aerial
photographs taken 1961. Field check 1964
Polyconic projection 1927 North American datum
15,000-foot grid based on California coordinate system,
zone 1
1000-meter Universal Transverse Mercator grid ticks,
zone 10, shown in blue
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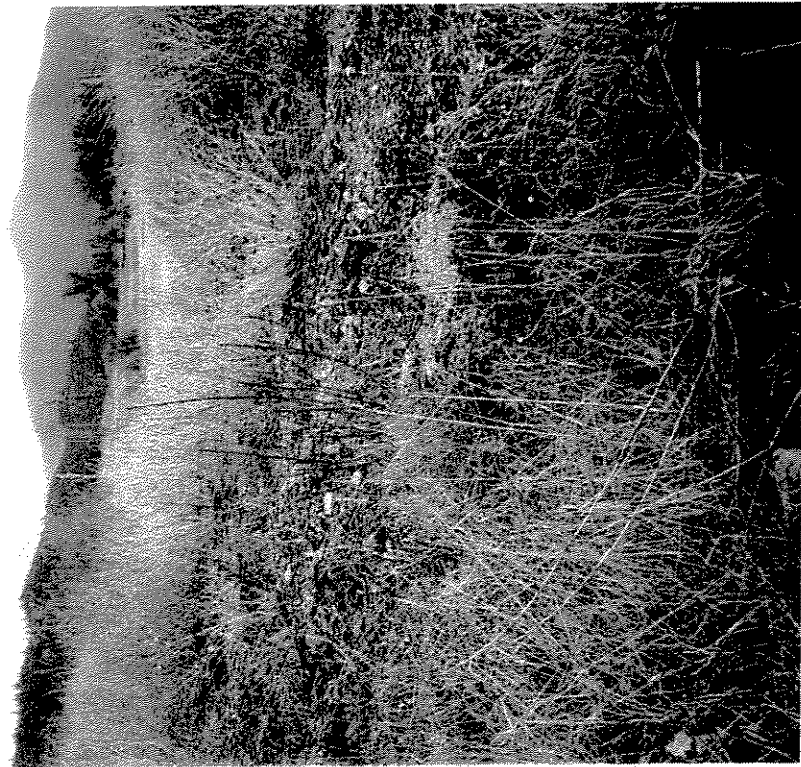
LEGEND
National Forest Boundary
Alienated Land within the National
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TOWNSHIP AND SECTION LINE CLASSIFICATION
Surveyed Location Reliable
Unsurveyed, Location Approximate
Unsurveyed, Protraction
Primary Highway
Secondary Highway
Improved Light Duty
Unimproved Dirt
Trail
Latched Gate
Road Location Approximate
Trail Location Approximate



FORT JONES SE, CALIF.
N4136-W12245/7.5
REVISED 1983



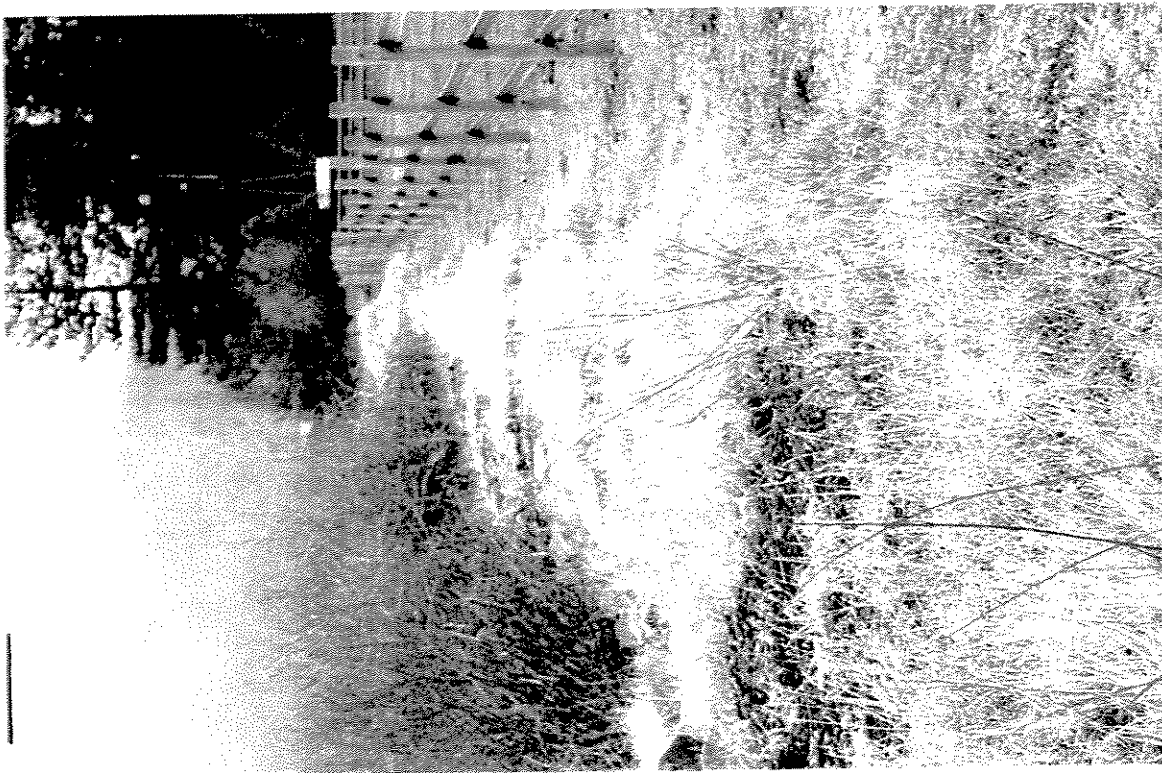
Site #1: Photo of typical surviving trees after one growing season. Notice deer browse has occurred but has not been severe.



Site #2: Picture taken in the fall of cuttings which have not been browsed. Cuttings have one season of growth.



Site #3: Typical tree at site in the fall of 2000. One seasons growth



Site #4: Typical growth after one seasons of growth.



Site # 5: Typical tree at site #5. Photo taken after one season of growth.

FOI ONES QUADRANGLE
CALIFORNIA-SISKIYOU CO.
15 MINUTE SERIES (TOPOGRAPHIC)

